

P. DURAIPPANDI

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GOOGLE SCHOLAR: <https://scholar.google.com/citations?user=YqmrRB0AAAAJ>

Objective:

To strive for excellence in the area of science with fresh challenges that would serve for social welfare and uplifting of the common man.

Education:

- **Assistant Professor**, (March 2018 – till date)
Department of Chemistry,
Central University of Karnataka
Kalaburagi, Karnataka, India.
 - **Post doctoral Research Associate**, (July 2014 – March 2018)
Department of Pathology and Bosch Institute
The University of Sydney. Sydney, Australia.
 - **Post doctorate**, (August 2012 – June 2014)
Department of Inorganic and Physical Chemistry
Indian Institute of Science (IISc), Bangalore, India.
 - **Ph.D. in Chemistry** (August 2006 – July 2012)
Department of Inorganic and Physical Chemistry
Indian Institute of Science (IISc), Bangalore, India.
Dissertation Title: *“Targeting Cancer Cells and Live Cell imaging Using Bis(thiosemicarbazone) Complexes of Copper and Zinc”*
Research Supervisor: Prof. A. G. Samuelson
 - **M.Sc. (Chemistry)**, First class (July 2004 – April 2006)
The American College, Madurai, India.
 - **B.Sc. Special Chemistry**, First class (July 2001 – April 2004)
The American College, Madurai, India
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Research awards & fellowships

- **Earlier carrier Research Grant** for young researchers awarded by The University of Sydney in 2014 (\$ 30,000).
 - **Senior Research Fellowship** (SRF) awarded by Council of Scientific and Industrial Research (CSIR), India (August 2008 – July 2011).
 - **Junior Research Fellowship** (JRF) awarded by CSIR, India (August 2006 – July 2008), one among the top 20% of the students qualified in CSIR-JRF and appeared for **Shyama Prasad Mukherjee** (SPM) Fellowship test-2006 in chemical science at the national level.
 - Awarded **Graduate Aptitude Test in Engineering** (GATE) in 2006.
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Research experience:

- ✓ Expert in synthesizing and characterizing organic compounds, organometallic complexes and their conjugates with nano-carriers such as carbon nanotubes, PEG and metal nanoparticles.
 - ✓ Cellular imaging with metal complexes and imaging intracellular metal ions.
 - ✓ Mechanistic studies with cancer cells.
 - ✓ DNA and protein/peptide interaction studies.
 - ✓ Strong background in cancer therapy.
 - ✓ Good knowledge in Alzheimer's therapy.
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Experimental skills:

- ✓ Handling double manifold Schlenk line.
- ✓ Experience in synthesizing organic ligands and their metal complexes, gold nanoparticles, PEG and MWCNT conjugated drugs in conjunction with targeting molecules like folic acid and biotin (to target cancer).
- ✓ Cell culture and cell-based assays.
- ✓ Western blots.
- ✓ Cellular experiments with radio-labeled ^{59}Fe and ^{125}I .
- ✓ Strong knowledge and research experience in cancer therapy.
- ✓ Imaging live cells and intracellular metal ions.
- ✓ DNA interaction studies (DNA -binding, -viscosity, -melting and -cleavage studies).
- ✓ Peptide interaction studies (Amyloid β , acetylcholinesterase, ubiquitin, Topoisomerase and transferrin).
- ✓ Known to interpret the data from SEM, TGA, AFM and animal (mice) experiments.

Instruments known to handle:

- ❖ Single crystal X-ray diffractometer (Bruker APEX IV)
- ❖ Nuclear magnetic resonance spectrometer (Bruker 400MHz)
- ❖ Mass spectrometry (Agilent, 6538 High accurate- Q-TOF LC/MS)
- ❖ Confocal fluorescence microscope
- ❖ Viscometer
- ❖ UV-visible spectrophotometer

- ❖ FT-IR spectrometer
- ❖ Cyclic voltammetry
- ❖ HPLC
- ❖ Gel electrophoresis (Agarose, PAGE and western bolts)
- ❖ Micro plate readers (Molecular device (M5^e), Wallac VICTOR and FLUOstar Omega)
- ❖ Fluorescence spectrometer
- ❖ Raman spectrometer
- ❖ Gamma counter

Teamwork skills:

- Secretary of “AL(L) chemist club” in the Department of Inorganic and Physical Chemistry in 2008–2009.
- Elected as Treasurer, CUK Teachers Association (Since September 2020).
- Won the first prize in the Cricket Tournament between Departments at CUK in 2019.

List of Publications - Papers in Refereed Journals

1. Kavya Sritha Bojja, Akash Kuma, **Palanimuthu D**, Harish Holla, Kavishankar Gawli. Inhibition and kinetic studies of phytochemical constituents of *Goniothalamus wynaadensis* and their isoxazoline derivatives on α -Glucosidase **Natural Product Research**, 2024, 1-11.
2. Sharma A, Talimarada D, Dhuri SN, Venkata Narayanan NS, **Palanimuthu D**, Holla H, Isolation, Structure Elucidation and in Vitro Anticancer Activity of Phytochemical Constituents of *Goniothalamus wynaadensis* Bedd. and Identification of α -Tubulin as a Putative Molecular Target by in Silico Study, *Chem. Biodivers.* 2023, e20230037 (*Impact factor: 2.9, citations: 0*)
3. Marichelvam T, Sebastian A, Ganapathi M, Holla H, **Palanimuthu D.**, Venkata Narayanan NS, Copper thiosemicarbazone modified electrode for hydrazine electrocatalytic oxidation, *Results in Chemistry*, 2023, 6, 101025 (*Impact factor: 2.3, citations: 0*)
4. Marichelvam, T., Murugan, G., Holla, H. Venkata Narayanan Naranammalpuram Sundaram, **P. Palanimuthu**. Electrocatalytic Oxidation of Hydrazine Using a Cobalt Bis(thiosemicarbazone) Complex. *Top Catal* (2022). 2022, 1-11 (*Impact factor: 3.6, citations: 4*)
5. Wu, Z.; **Palanimuthu, D.**; Braidy, N.; Salikin, N. H.; Egan, S.; Huang, M. L. H.; Richardson, D. R. *Br. J. Pharmacol.* **2020**, 177, 1967-1987 (*Impact factor: 7.3, citations: 7*)
Novel multifunctional iron chelators of the aroyl nicotinoyl hydrazone class that markedly enhance cellular NAD⁺/NADH ratios.

6. Anjum, R.; **Palanimuthu, D.**; Kalinowski, D. S.; Lewis, W.; Park, K. C.; Kovacevic, Z.; Khan, I. U.; Richardson, D. R.
Synthesis, characterization, and in vitro anticancer activity of copper and zinc bis(thiosemicarbazone) complexes
Inorg. Chem. **2019**, 58, 13709–13723 (*Impact factor: 4.6, citations: 95*)
7. **Palanimuthu, D.**; Wu, Z.; Jansson, P.J.; Naidy, B.; Bernhardt, P. V.; Richardson, D. R.; Kalinowski D.
Dalton Trans. **2018**, 47, 7190–7205. (*Impact factor: 4.0, citations: 32*)
Novel chelators based on adamantane-derived semicarbazones and hydrazones that target multiple hallmarks of Alzheimer's disease.
8. **Palanimuthu, D.**; Poon, R.; Sahni, S. Anjum, R.; Bernhardt, P. V.; Kalinowski D.; Richardson, D. R.
Eur. J. Med. Chem. **2017**, 139, 612–632. (*Impact factor: 6.7, citations: 71*)
A novel class of thiosemicarbazones show multi-functional activity for the treatment of Alzheimer's disease.
9. Pramanik, A. K.; Uzzaman, S.; **Palanimuthu, D.**; Somasundaram, K.; Samuelson, A. G.
Bioconjugate Chem. **2016**, 27, 2874–2885. (*Impact factor: 4.7, citations: 48*)
Biotin decorated gold nanoparticles for targeted delivery of a smartly linked anticancer active copper complex: In vitro and in vivo studies.
10. Stacy, A. E.; **Palanimuthu, D.**; Bernhardt, P.V.; Kalinowski, D. S.; Jansson, P. J.; Richardson, D.R.
J. Med. Chem. **2016**, 59, 8601–8620. (*Impact factor: 7.3, citations: 89*)
Structure-activity relationships of di-2-pyridylketone, 2-benzoylpyridine and 2-acetylpyridine thiosemicarbazones for overcoming Pgp-mediated drug resistance.
11. Park, K. C.; Fouani, L.; Jansson, P. J.; Wooi, D.; Sahni, S.; Lane, D. J. R.; **Palanimuthu, D.**; Lok, H. C.; Kovacevic, Z.; Huang, M. L. H.; Kalinowski, D. S.; Richardson, D. R.
Metallomics **2016**, 8, 874–886. (*Impact factor: 3.4, citations: 128*)
Copper and conquer: copper complexes of di-2-pyridylketone thiosemicarbazones as novel anti-cancer therapeutics.
12. Stacy, A. E.; **Palanimuthu, D.**; Bernhardt, P.V.; Kalinowski, D. S.; Jansson, P. J.; Richardson, D.R.
J. Med. Chem. **2016**, 59, 4965–4984. (*Impact factor: 7.3, citations: 166*)
Zinc(II) thiosemicarbazone complexes are localized to the lysosomal compartment where they transmetallate with copper ions to induce cytotoxicity.

13. Sahni, S.; Krishan, S.; **Palanimuthu, D.**; Richardson D. R.
Expert Opin. Therap. Patents. **2015**, 25, 367-372. (Impact factor: 6.6, citations: 1)
The use of iron chelators in biocidal compositions: evaluation of patent, WO2014059417A1.
14. **Palanimuthu, D.**; Samuelson, A. G.
Inorg. Chim. Acta **2013**, 408, 152–161. (Impact factor: 2.3, citations: 38)
Binuclear zinc bis(thiosemicarbazone) complexes: Synthesis, in vitro anticancer activity, cellular uptake and DNA interaction study.
15. **Palanimuthu, D.**; Shinde, S. V.; Dayal, D.; Somasundaram, K.; Samuelson, A. G.
Eur. J. Inorg. Chem. **2013**, 3542–3549. (Impact factor: 2.8, citations: 6)
Imaging intracellular zinc by using a glyoxal-bis(4-methyl-4-phenyl-3-thiosemicarbazone) ligand.
16. **Palanimuthu, D.**; Shinde, S. V.; Somasundaram, K.; Samuelson, A. G.
J. Med. Chem. **2013**, 56, 722–734. (Impact factor: 7.3, citations: 269)
In vitro and in vivo anticancer activity of copper bis(thiosemicarbazone) complexes.
17. Dayal, D.;* **Palanimuthu, D.**;* Shinde, S. V.; Somasundaram, K.; Samuelson, A. G.
J. Biol. Inorg. Chem. **2011**, 16, 621–632. (Impact factor: 3.0, citations: 46)
A novel zinc bis(thiosemicarbazone) complex for live cell imaging.
* Contributed equally.

List of Publications - Patents

1. Richardson, D. R.; Kalinowski D.; **Palanimuthu, D.**
WO Patent WO/2017/214680
Adamantane compounds. (Citations = 1)
 2. Richardson, D. R.; Kalinowski D.; **Palanimuthu, D.**
WO Patent WO/2017/219086
Anti-ageing compounds.
 3. Richardson, D. R.; Kalinowski D.; **Palanimuthu, D.**; Poon, R.
WO Patent WO/2017/219087
New thiosemicarbazone compounds and analogues thereof.
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Lectures/seminars delivered

- Delivered a talk on *Novel Iron Chelators for the treatment of Alzheimer's disease* at HRDC, University of Hyderabad, Hyderabad on 21st November 2020.
- Delivered a lecture on “*Novel copper and Zinc thiosemicarbazone complexes target cancer cells by overcoming multi-drug resistance*” in the International conference on functional materials. Thiagarajar College, Madurai on 7-8 September, 2017.
- Delivered a seminar on “*Nitrogen fixation*” in the Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore on October, 2007.
- Delivered a seminar on “*Zinc homeostasis*” in the Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore on March, 2009.
- Delivered a lecture on “*Studies on imaging zinc in cancer cells using bis(thiosemicarbazone) ligands*” in RTC-IV, The American College, Madurai, February, 2010.

Posters presented in the international/national conferences/symposia

1. *Novel multi-functional Iron chelators enhance cellular NAD⁺/NADH ratios.* **Duraippandi P**, Wu Z, Braidy, N, Salikin, NH, Egan S, Huang MLH, Richardson D. R., CRSI 26th National symposium in chemistry, Feb 7-9, 2020, VIT Vellore, India.
2. *Unusual anticancer activity of binuclear zinc bis(thiosemicarbazone) complexes.* **Modern Trends in Inorganic Chemistry (MTIC-XV)**, December 13–16, 2013, Indian Institute of Technology-Roorkee, India.
3. *Targeted therapy of cancer with bis(thiosemicarbazone) complexes.* Chemical sciences divisional day (**ACS meeting**), 3rd October, 2012, Indian Institute of Science, Bangalore, India.
4. *Bis(thiosemicarbazones): versatile ligands for making zinc based imaging agents and anticancer active copper complexes.* **Metallomics 2011-3rd International symposium on metallomics**, June 15–18, 2011, University of Münster, Münster, Germany.
5. *Studies on anticancer active copper bis(thiosemicarbazone) complexes and their mechanism of action.* **13th CRSI National symposium on chemistry**, February 4–6, 2011, NISER-KIIT University, Bhubaneswar, India.
6. *Anticancer activity of bis(thiosemicarbazone) ligands and their metal complexes: A comparative study.* **Modern Trends in Inorganic Chemistry (MTIC-XIII)**, December 7–10, 2009, Indian Institute of Science-Bangalore, India.
7. *Cellular distribution of bis(thiosemicarbazone) ligands and their zinc and copper complexes.* **Symposium on Advanced Biological Inorganic Chemistry (SABIC-2009)**, November 4–7, 2009, Tata Institute of Fundamental Research, Mumbai, India.

Conferences/ Winter-Schools attended:

1. **Winter-School in Bioinorganic Chemistry**, November 17-30, 2007, Indian Institute of Technology Bombay, Mumbai, India.
2. **School on Advanced Biological Inorganic Chemistry**, November 2-5, 2009, Tata Institute of Fundamental Research, Mumbai, India.
3. **10th CRSI National Symposium in Chemistry**, February 1-3, 2008, Indian Institute of Science, Bangalore, India.

Conferences/ Lectures organized

- 1) A symposium on “Recent Trends in Chemistry” (RTC-III) at The American College, Madurai in 2009 was successfully organized.
- 2) A series of Online seminars on “Modern Trends in chemistry and Biology” arranged during COVID-19 from August to September 2020.

Administrative positions held:

- 1) Coordinator of Life Science, August 2019 to Jan 2021
- 2) Drafting Committee for HEFA proposal
- 3) COVID-19 Nodal Officer (August 2019- till date)
- 4) Annual report committee member (August 2021- till date)

Membership:

- 1) Life membership in CRSI, India (ID; LM 2477)
- 2) Member, Society for Redox Biology and Medicine (SfRBM), USA

Teaching Experience:

I have been teaching both M.Sc Chemistry and B.Sc program for the last 3 Years

Course taught: Coordination Chemistry, Organometallic chemistry, Atomic Structure, Solid State Chemistry, Nuclear Chemistry, Bioinorganic Chemistry, Chemical Applications of Group Theory.

Grants Received

- **Early career Research Grant (\$ 30,000)** for young researchers awarded by University of Sydney in 2014.
- **BSR Start up Grant (10,00000)** awarded by UGC in 2019.

PhD and M.Sc Projects:

PhD – Ongoing -1; Completed =0

M.Sc – Ongoing -3; Completed =28

Personal information:

Gender : Male
Date of Birth : 6th April 1984
Marital Status : Married
Permanent Address : Kilanery, Vadivelkarai (Post), Madurai – 625019, India.
Languages known : English and Tamil

References:

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Prof. Des R. Richardson Professor Director, Molecular Pharmacology and Pathology Program, Department of Pathology and Bosch Institute, The University of Sydney, Sydney, 2006 Australia Ph: + 61-2-9036-6548 Email: d.richardson@med.usyd.edu.au	